STUDIES OF BIGNONIACEAE 11: A SYNOPSIS OF THE GENUS *DISTICTIS*.

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ABSTRACT

The genera *Wunschmannia* and *Anomoctenium* are united with *Distictis*. Necessary new combinations are *D. staminea* (Lam.) A. Gentry, *D. stipularis* (Mart. *ex* DC.) A. Gentry, and D. *scabriuscula* (Mart. ex DC.) A. Gentry. A new species, *D. steyermarkii* A. Gentry, related to the former members of *Anomoctenium*, is also described. A synopsis of the species of *Distictis* is included.

Distictis Mart. *ex* Meissn., Gen. 1: 300; 2: 208. 1840.

Phaedranthus Miers, Proc. Roy. Hort. Soc. London 3: 182. 1863.
Macrodiscus Bur., Monogr. Bignon. 46, *pl. 11*. 1864.
Wunschmannia Urb., Symb. Antill. 5: 494. 1908.
Anomoctenium Pichon, Bull. Soc. Bot. France 92: 226. 1946.

As usually delimited, *Distictis* has contained only three species. To these I have recently added a fourth by synonymizing *Phaedranthus* with *Distictis* (Gentry, 1973). Further study reveals that two more genera, *Wunschmannia* and *Anomoctenium*, should also be united with it.

As thus constituted, *Distictis* is characterized by scandent habit, six-angled, ribbed branchlets without interpetiolar glandular fields and often with foliaceous pseudostipules; 3(–5)-fid tendrils; terminal few- to several-flowered inflorescences; cupular, more or less truncate, usually glandular calyces; pubescent, tubular-campanulate or widely tubular, white or cream to deep red-violet corollas; sometimes exserted stamens; ecolpate pollen; more or less oblong, puberulous (very slightly puberulous but conspicuously lepidote in *D. lactiflora*) ovaries with the ovules several-seriate in each locule; and elliptic-oblong capsules, acute at the ends, with convex woody non-echinate valves, a flat septum, and seeds in two rows with the bodies brown, irregularly ridged, and usually somewhat papillose or puberulous.

A synopsis of the nine species which should be included in *Distictis* follows.

1. **D. lactiflora** (Vahl) DC., Prodr. 9: 191. 1845.

Bignonia lactiflora Vahl, Symb. Bot. 3: 80, *t. 66*. 1794. TYPE: St. Croix: *West s.n.* (C).
B. rigescens Jacq., Hort. Schoenbr. 2: 44, 5. 210. 1797. TYPE: Caracas(?) (location doubtful, not seen).
Distictis rigescens (Jacq.) DC., Prodr. 9: 191. 1845.
Macrodiscus rigescens (Jacq.) Bur., Mon. Bignon. 46, *pl. 11*. 1864.
Bignonia odorata Bello, Anal. Soc. Esp. Hist. Nat. 10: 293. 1881. TYPE: Puerto Rico (not seen).
Macrodiscus lactiflorus (Vahl) Bur. *ex* K. Schum. *in* Engler & Prantl, Nat. Pflanzenf. 4(3b): 216. 1894.

This is the best known species of the genus. It is reported from most of the islands of the West Indies and was chosen as the lectotype of the genus by

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Sandwith (1962: 454). *Distictis rigescens* was only provisionally separated from *D. lactiflora* by A. de Candolle (1845: 191) and Schumann (1894: 216). Britton (1925: 193) was apparently the first to definitely unite the two species.

2. **D. gnaphalantha** (A. Rich.) Urb., Feddes Repert. 14: 310. 1916.

Bignonia gnaphalantha A. Rich. *in* Sagra, Cuba 11: 105. 1850. TYPE: Cuba (not seen).
Macrodiscus gnaphalanthus (A. Rich.) Baill. *ex* Durand & Jackson, Index Kewensis, Suppl. 1: 259. 1903.
Distictis rhynchocarpa Urb., Symb. Antill. 9: 253. 1924. TYPE: Cuba: Oriente, *Ekman 1388* (not seen).
D. gnaphalantha subsp. *rhynchocarpa* (Urb.) Borhidi & Muñiz, Bot. Közlem. 58: 176. 1971.

Endemic to Cuba. *Distictis rhynchocarpa* was united with *D. gnaphalantha* by Borhidi and Muñiz (1971). Although they regarded it as a subspecies, it seems likely that it is at most a variety. The emarginate leaves used to separate it are often not constant, even on a single plant, in closely related *D. lactiflora*.

3. **D. laxiflora** (DC.) Greenm., Proc. Amer. Acad. Arts 33: 486. 1898.

Bignonia laxiflora DC., Rev. Bign. 21 (Biblioth. Universelle Genève). 1838, nom. nud.
B. cinerea DC., Rev. Bignon. 21 (Biblioth. Universelle Genève). 1838, nom. nud.
Pithecoctenium cinereum DC., Prodr. 9: 195. 1845. SYNTYPES: Mexico, *Mairet s.n.* (G-DC); Mexico, Oaxaca, *Andrieux 221* (G-DC).
P. laxiflorum DC., Prodr. 9: 195. 1845. TYPE: Mexico, Oaxaca, *Andrieux 220* (G-DC)
Distictis cinerea (DC.) Greenm., Proc. Amer. Acad. Arts 33: 487. 1898.

Mexico to Nicaragua (the Nicaraguan collections possibly from cultivated plants?). Standley (1926), the first to unite *P. cinereum* and *P. laxiflorum*, used the latter name.

4. **D. buccinatoria** (DC.) A. Gentry, Brittonia 25: 237. 1973.

Pithecoctenium buccinatorium DC., Prodr. 9: 195. 1845. TYPE: Mexico, *Mairet s.n.* (G-DC).
Bignonia buccinatoria Mairet *ex* DC., Prodr. 9: 195. 1845, nom. nud., pro syn.
Pithecoctenium buccinatorium var. *exsertum* DC., Prod. 9: 195. 1845. TYPE: Mexico, *Mairet s.n.* (G-DC).
Bignonia ghiesbreghtii Heller, Linnaea 30: 45. 1859. TYPE: Mexico, Toluca, *Heller 390* (not seen).
Phaedranthus buccinatorum [*sic*] (DC.) Miers, Proc. Roy. Hort. Soc. London 3: 182. 1863.
P. lindleyanus Miers, Proc. Roy. Hort. Soc. London 3: 182. 1863, nom. nud.
P. exsertus (DC.) Miers, Proc. Roy. Hort. Soc. London 3: 183. 1863.
P. cinerascens Miers, Proc. Roy. Hort. Soc. London 3: 183. 1863, nom. nud.

Endemic to Mexico; widely cultivated elsewhere. The reasons for synonymizing *Phaedranthus* with *Distictis* have been discussed elsewhere (Gentry, 1973).

The merger of *Phaedranthus* with *Distictis* makes advisable reconsideration of *Sererea* Raf. against which it has been conserved. *Sererea*, the oldest of these three names, was nominally based on *Bignonia heterophylla* Willdenow, an illegitimate name change for *B. kerere* Aublet. As interpreted by Sandwith (1955), Rafinesque's genus is actually based on Lindley's (1829) description and plate of his "*B. cherere*." The plant figured by Lindley is apparently

Distictis buccinatoria and only distantly related to Aublet's (1775) *B. kerere*, which belongs to the modern *Pachyptera*. Sandwith successfully proposed *Phaedranthus* for conservation against *Sererea* on this basis.

However, I do not think that Rafinesque's genus can be definitively linked to *Phaedranthus* at all. The generic description, though following Lindley for the most part, is certainly inadequate to distinguish between the species figured by Lindley and that of Aublet. "Cal. urceol. 5dent. cor. tubul. limbo plano 5part. lac. (*sic*) obcord. obliquis subeq. stylo clavato, stig. obt. antheris sagittatis lobis divarcatis" describes *Distictis buccinatoria* and *Pachyptera kerere* about equally well. Nor does Rafinesque's description of his single species, *Sererea heterophyla* (*sic*) throw much light on the matter. Neither species has a 5-dentate calyx (sometimes remotely denticulate in *D. buccinatoria*). Neither species ever has simple leaves, even in part. Neither has sagittate anthers. Both species normally have racemose rather than paniculate inflorescences. The habitat, "Guyana," applies to *P. kerere* but not *D. buccinatoria*. The description of the flowers ("4 inches long, base yellow limb scarlet") fits *D. buccinatoria* rather than *P. kerere* (though a red-flowered variety of *P. kerere* is also known). All other characters agree with both species and indeed with the majority of genera of Bignonieae. Merrill's (1949) consideration of *Sererea* as synonymous with yet another genus, *Pithecoctenium*, underlines the inadequacy of its circumscription.

If *Sererea* is not rejected, then conservation of *Distictis* against it might be in order. Although the case for conservation of *Distictis* (9 species, at least 3 with some horticultural importance) is stronger than that successfully argued for *Phaedranthus* (a single horticulturally important species), conservation seems unnecessary in view of the confused status of *Sererea*.

Alternatively, if Rafinesque's genus is considered based on *B. kerere*, the conservation of *Pachyptera* against *Sererea* might be considered. Willdenow, Lindley, and Rafinesque all thought they were describing Aublet's plant, and nomenclaturally at least, the type species of *Sererea*, *S. heterophylla*, is a superfluous synonym of *Pachyptera kerere*. *Pachyptera* contains four species, at least two of some horticultural importance, and is also better known than *Phaedranthus*.

Under the circumstances, I see no way to definitively assign Rafinesque's inadequate generic description either to *D. buccinatoria* or to the Aublet plant upon which it was nominally based. The outright rejection of *Sererea* under either Article 69 or Article 70 of the *Code* appears in order.

WUNSCHMANNIA Urb.

In creating his monotypic genus *Wunschmannia* for Lamarck's *Bignonia staminea*, Urban (1908) separated it from *Macrodiscus* (*i.e. Distictis*) on the basis of its more strongly bilabiate corolla and exserted (or subexerted!) stamens. The close relationships of the single specimen of *Wunschmannia* (*Buch 352* (MO) cited by Urban) examined by me with *Distictis* is obvious on the basis of its 6-angled, ribbed branchlets, leaf form, terminal inflorescence, subfoliaceous pseudostipules, truncate, cupular calyx, sometimes with linear glandular fields descending from its rim, and strongly pubescent corolla. Although I have seen

no fruiting material, Urban tentatively described the capsule as oval and both Lamarck and Plumier described it as hard and oval, which accords well with *Distictis*. I find the similarities of the two genera more impressive than their differences, especially since the very similar *Phaedranthus*, which likewise has been separated from *Distictis* largely on the basis of exserted stamens, has proven congeneric with *Distictis*. An equivalent variation in corolla shape and degree of zygomorphy is found in such other genera as *Tecoma* and *Adenocalymma*.

The reduction of *Wunschmannia* to *Distictis* adds a fifth species to that genus.

5. **D. staminea** (Lam.) A. Gentry, comb. nov.

Bignonia staminea Lam., Encyc. 1: 421. 1783. TYPE: (not seen—illustration by Plumier in Pl. Am. *t.* 56, *fig.* 2; original at P).
Wunschmannia staminea (Lam.) Urb., Symb. Ant. 5: 494. 1908.

Apparently endemic to Haiti. Lamarck's name was based on a Plumier drawing and, as noted by Urban, could hardly be identified with any other plant. In addition to the toothed calyx (a common error of the period) and simple tendril noted as inconsistencies by Urban, the figuring of the flower as emerging from the end of a leaf in the position of a tendril proves the poor quality of the Barmann illustration. The original Plumier drawing is much better, and I have accepted Urban's identification of the Buch specimen with Lamarck's plant.

An additional point of interest is the superficial similarity of this species with the monotypic *Dolichandra*, a reputed member of the Tecomeae from southern Brazil, Uruguay, and Argentina.

Anomoctenium Pichon

Sandwith (1965) accepted *Anomoctenium* as a distinct genus, comparing it with *Pithecoctenium*, *Distictella*, and *Amphilophium*, and characterizing it by six-angled branchlets with detachable ribs, dendroid trichomes, corolla tube with evident rows of glands at base of lobes without, a non-echinate sharply acuminate, very convex, pubescent or subtomentose capsule with the acumen remaining with the valves at dehiscence, and seeds in two rows, smaller and more narrowly transversely oblong than in *Pithecoctenium*, with membranous wings veined with brown and with a darker brown, rough, irregularly ridged, papillose or pubescent body and leaving a long and narrow hilum scar on the septum. Although adequately separated from *Pithecoctenium* and *Distictella* on the basis of the listed characters, *Anomoctenium* seems much closer to *Distictis* which was, surprisingly, omitted from Sandwith's discussion. Indeed the above description of *Anomoctenium* applies almost equally well to *Distictis*. Only dendroid trichomes and glands at the bases of the corolla lobes are out of place is *Distictis*. In addition the two genera share usually trifid (to several-branched) tendrils, foliaceous pseudostipules, terminal inflorescences, often with leaf-like bracts, and have very similar corollas, calyces, and general appearance. Both genera are reported to have ecolpate pollen (Urban, 1916: 773; Sandwith, 1965: 412).

The otherwise unique fruit of *Anomoctenium*, emphasized by Sandwith in separating that genus from *Pithecoctenium* and *Distictella*, is just that of *Distictis*. Even the seeds of *Anomoctenium* with their ridged, more or less papillose or papillose-puberulous bodies are the same as those of *Distictis*. Although I have not microscopically examined the fruit of *D. lactiflora* (Vahl) DC., it has the same general form as that of *Anomoctenium*. The fruit of *D. buccinatoria* (DC.) A. Gentry, though not acuminate, is of the same shape as that of *Anomoctenium*, similarly convex and woody-valved, pubescent, and with the midrib very inconspicuous or not evident. Its seeds also have a rather wrinkled body, somewhat papillose toward the center. The fruit of *D. laxiflora* (DC.) Greenm. (*Pringle 6724*, MO), still more like that of *Anomoctenium*, is acutely narrowed at both ends, with convex, woody, pubescent valves with a slightly wrinkled surface and inconspicuous midrib. Its seeds have an irregularly wrinkled, slightly papillose-puberulous body. The fruit of *D. gnaphalantha* (A. Rich.) Urb. (*Wright 3050*, MO) is also like that of *Anomoctenium*, even to an acuminate tip, a yellowish indumentum when young, and the presence of scattered warty glands. I have examined only immature seeds of *D. gnaphalantha*, and these also have the characteristic wrinkled body but seemingly lack papillae or pubescence.

We are thus left with only dendroid trichomes and corolla glands as possible characters for separating *Anomoctenium* from *Distictis*. Neither character appears adequate for generic segregation, since genera such as *Amphilophium* and *Arrabidaea* have some species with dendroid and some with simple trichomes, while corolla glands similar to those of *Anomoctenium* are present in some species of *Anemopaegma* and *Pachyptera* but absent in others. There seems no justification for retention of *Anomoctenium*, and I accordingly reduce it to *Distictis*, to which must be added the following three species.

6. **D. stipularis** (Mart. ex DC.) A. Gentry, comb. nov.

Pithecoctenium stipulare Mart. ex *DC.*, Prodr. 9: 194. 1845. TYPE: Brazil: Bahia, *Martius 2079* (M).
P. frutescens DC., Prodr. 9: 196. 1845. TYPE: Brazil: *Lhotsky s.n.* (G-DC).
Anemopaegma nigrescens Bur. & K. Schum. *in* Mart., Fl. Bras. 8(2): 125. 1896. SYNTYPES: Brazil: Espírito Santo, *Sellow 398* (not seen). Brazil: Rio de Janeiro, *L.* [= Luschnath?] no. *313* (not seen).
Anomoctenium stipulare (Mart. *ex* DC.) Pichon, Bull. Soc. Bot. France 92: 227. 1945.
Distictella nigrescens (Bur. & K. Schum.) J. C. Gomes, Arch. Jard. Bot. Rio de Janeiro 12: 150, *t. 4*. 1953.

Eastern Brazil.

7. **D. granulosa** Bur. & K. Schum. *in* Mart., Fl. Bras. 8(2): 179. 1896.

Pithecoctenium uleanum Kranzl., Notizbl. Bot. Gart. Berlin-Dahlem 6: 377. 1915. TYPE: Brazil: Rio Branco (Terr. Roraima), *Ule 7706* (K).
Distictella granulosa (Bur. & K. Schum.) Sprague & Sandw., Kew Bull. 1932: 89. 1932.
Anomoctenium granulosum (Bur. & K. Schum.) Sandw. Kew Bull. 19: 156. 1965.

Colombia (*Haught 2209*, MO) to the Guianas and in Amazonian Brazil.

8. **D. scabriuscula** (Mart. *ex* DC.) A. Gentry, comb. nov.

Pithecoctenium scabriusculum Mart. *ex.* DC., Prodr. 9: 197. 1845. TYPE: Brazil: Rio Paraíba (formerly Rio Parahyba), *Prince Videnses s.n.* (Wied-Neuwied) (BR).

Eastern Brazil.

An undescribed species closely allied with the former members of *Anomoctenium* is the ninth member of the expanded genus.

9. **D. steyermarkii** A. Gentry, sp. nov.

Frutex scandens. *Ramuli* 6-angulati, pubescentes, sine consociebus glandularum in nodis inter petiolos. *Pseudostipulae* foliaceae. *Folia* bifoliolata, interdum cirrho 3-partito, foliolis plus minusve suborbiculatis, confertim dendroideo-pubescentibus. *Inflorescentiae* floribus in racemis bracteatis terminalibus dispositis, bracteis linearibus ad 10 mm longis. *Calyx* cupulatus, truncatus, puberulus, consociebus glandularum linearibus. *Corolla* lobis albis tuboque intus luteo extus cremeo, tubulo-campanulata, dense pubescens in tubo extus atque in lobis. *Stamina* thecis divaricatis, 4 mm longis. *Pistillum* stylo dense pubescenti, ovario ellipsoideo, tomentoso. *Capsula* elliptica, acute, puberula.

Vine, the branchlets inconspicuously 6-angled with wide detachable ribs, dendroid-pubescent, the nodes without interpetiolar glandular fields; pseudostipules minutely foliaceous, dendroid-pubescent, to 3 mm by 3 mm. *Leaves* 2-foliolate, often with a tendril; leaflets ovate to suborbicular, obtuse, cordate, 4–8 cm long and 3–7 cm wide, chartaceous, secondary veins 3–5 on a side, densely dendroid-pubescent below, scabrous above with simple and dendroid trichomes, drying olive; tendril trifid; petiolules 0.6–2 cm long, petiole 1–3 cm long, dendroid-tomentose like the petiolules. *Inflorescence* a few-flowered, bracteate, terminal raceme, its branches dendroid-pubescent, the bracts linear, to 10 mm long and 2 mm wide. *Calyx* cupular, truncate, 4–7 mm long and 6–7 mm wide, dendroid-puberulous, with several linear glandular fields descending from rim. *Corolla* with lobes white and tube yellow within and cream without; tubular campanulate, 6.5–7.5 cm long and 1.7–1.9 cm wide at mouth of tube, the tube 5–6 cm long, the lobes 1.2–1.7 cm long, with linear glandular fields at base without; densely dendroid-pubescent without and on lobes within, the tube within mostly glabrous, with gland-tipped trichomes at level of stamen insertion. *Stamens* didynamous, the anther thecae divaricate, each 4 mm long, the longer filaments 2.8–2.9 cm long, shorter filaments ca. 2.0 cm long, the staminode 6 mm long; insertion 1.1–1.4 mm from base of corolla tube. *Pistil* 4.7–4.9 cm long; style densely dendroid-pubescent; ovary ellipsoidal, 3–4 mm long and 2 mm wide, somewhat contracted at base, tomentose, the ovules ± 6-seriate in each locule; disk annular, 1 mm long and 2–3 mm wide. *Capsule* elliptical, acute at both ends, 8–11 cm long and 3–3.5 cm wide, ca. 1.5 cm thick, the valves woody, convex, dendroid-puberulent, with numerous cup-shaped glands, especially along the slightly impressed midrib; seeds 1.1–1.4 cm long and 3–3.9 cm wide, the wings hyaline-membranous, distinctly demarcated from the puberulous body.

HOLOTYPE: Venezuela. Distrito Federal: Steep, seaward, forested slopes with *Manilkara bidentata*, between Osma and Todasana, alt. 100 meters. Low vining over shrubs; flowers delicately fragrant; corolla tube creamy without,

yellow within to orifice; lobes white without and within; leaflets membranous, yellow green below, 24 Nov 1971 *Steyermark & Brewer Carias 105274* (MO; isotype, VEN).

This striking plant is apparently endemic to extreme northern Venezuela and adjacent Colombia, having been collected only from the Distrito Federal and Trujillo in Venezuela and Norte de Santander in Colombia.

Additional collections examined:

VENEZUELA. DISTRITO FEDERAL: Dry seaward slopes, 0.6 km W of Oritapo, 7 km E of Osma, Dept. Vargas, alt. 50 m, 11 Mar. 1973, *Steyermark & Carreño Espinosa 106874* (MO, VEN); selva seca tropofila, entre Los Caracas y Todasana; sprawling low, leaves membranous, yellow-green below with raised nerves, flower buds yellow green, alt. 100 m, 30 Apr. 1967, *Steyermark & Bunting 98243* (VEN). TRUJILLO: Alrededores de Escuque, en matorrales a la orilla del rio, 10 Jan. 1929, *Pittier 13129* (US, VEN).

COLUMBIA. NORTE DE SANTANDER: Between Chinacota and La Esmeralda, alt. 1000–1300 m. 19 Mar. 1927, *Killip & Smith 20877* (US).

This species is most closely related to *Distictis scabriuscula*, and the Pittier collection was tentatively determined by Sandwith in 1958 as *Pithecoctenium scabriusculum* with the note, "I place this collection—also *Alston 7095*—here provisionally, awaiting further evidence, and more Brazilian material and fruit." *Killip & Smith 20877* was determined by Dugand as *Pithecoctenium* cf. *scabriusculum*, probably by matching it with the sheet determined by Sandwith. Since Sandwith (1965: 410) later gave the range of *P. scabriusculum* as "extra-hylean eastern Brazil" without mentioning the Pittier collection from Venezuela at all, it appears likely that he subsequently changed his mind about identifying it with that species. The additional collections now available have convinced me that the differences between *D. steyermarkii* and *D. scabriuscula* are constant and that the Venezuelan and Colombian plant merits specific recognition. In addition to its geographic disjunction, *D. steyermarkii* differs from *D. scabriuscula* especially in its conspicuously cordate leaflets and smaller (4–7-mm-long), thinner, less pubescent calyx in contrast to the truncate to asymmetrically subcordate leaflets and thick, 7–9-mm-long (fide Bureau & Schumann, 1896–97; 171), densely pubescent calyx of the latter. *Distictis steyermarkii* is also characterized by small, foliaceous pseudostipules, lack of which is a key specific character for *D. scabriuscula* as interpreted by Bureau and K. Schumann (1896–97: 164.).

The new species is noteworthy for its dense indumentum of dendroid trichomes. In fact it appears almost vegetatively indistinguishable from similarly pubescent *Amphilophium paniculatum* var. *molle* (Schlecht. & Cham.) Standl. (also known as *A. macrophyllum* H.B.K.) thus emphasizing the relationship with *Amphilophium* noted by Sandwith. The fruit agrees in general form with the more blunt-ended one of *Amphilophium paniculatum* (L.) H.B.K. especially in the pubescent seeds but is also similar to that of other species of *Distictis*. Its calyx and flower are more like those of *Ceratophytum* or *Anemopaegma* than like those of *Distictella* or *Pithecoctenium*, the other two genera with which Sandwith compared *Anomoctenium*.

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